CDF Operations Report

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29-Apr-2004

CDF Weekly Meeting

(Talk not given – CDF Collaboration Meeting)

STORE SUMMARY

Store	Start Date	Duration (hours)	Inst Lum Initial e30 cm-2 s-1	Int. Lum Delivered nb-1	Live Lum nb-1	Good/w Silicon nb-1	Tevatron Terminate
3434	4/22	29.7	44.8	2,101	1,633 77.7%	1,165 55.5%	OK
3436	4/24	30.8	48.8	2,364	2.184 92.4%	2.014 85.2%	OK
3444	4/26	33.1	56.0	2,856	2,385 83.5%	1,684 59.0%	OK
3446	4/27	1.3	15.6	31.1	12.2 39.1%	0.0	Separator Spark
3456	4/28	26.2	51.5	2,109	1,602 76.0%	222 10.5	OK
Total 3434-3456		121.0		9,461	7,817 82.6%	5,084 53.7%	

Silicon chiller problems keep silicon off during part of store 3444 and much of store 3456.

CDF STATUS

- **Stores 3434-3456, COT in "compromised state" with SL1,2,3 off and SL4,5 at reduced gain.**
- **COT gas flow has been reversed since 3/3/2004.**
- **Store 3434 had high abort gap losses that prevented running with silicon for part of store. Other stores were "cleaner".**
- **Silicon was intentionally held out beginning and end of stores 3434-3436 (aftermath of abort kicker prefires the week before).**
- **ISL chiller failed during store 3444 (replaced with spare chiller)**
- **Store 3446 had separator spark during squeeze and was intentionally aborted when beam/luminosity could not be recovered.**
- **Store 3456 had cogging problem. Four proton bunches kicked out because they were "under" pbar bunches being kicked in. Beam was aborted and store went in two hours later after studies.**
- **Store 3456 had high lostp at beginning of store.**

CDF STATUS (cont'd)

- **Store 3456 had cogging problem. Four proton bunches kicked out because they were "under" pbar bunches being kicked in. Beam was aborted and store went in two hours later after studies.**
- **Store 3456 had high lostp at beginning of store.**
- **CES 21E voltage reduced 50v due to trips.**
- **SVX chiller trips twice during store 3456. Chiller trips cause power to be turned OFF to SVX/L00. Silicon is declared off until chillers can be repaired.**
- **Silicon reports additional fallout from April 15 incident (see following slides from Rainer Wallny).**
- ***Otherwise*, detector has no *new* major problems.**
- **Work on COT gas recirculation systems continues but not yet in production.**

Silicon Status, April 26, 2004 (but see next slide)

From: Rainer Wallny (April 26,2004)

in case you get asked at the AEM:

of the 4 ladders which showed a reaction at the april 15th prefire, one ladder lost 8/10 chips in the 'classic' AVDD2 failure mode and one ladder (a layer 4 with 14 chips) shows a new failure mode where chip IDs are sent out of order, rendering the data of the full ladder useless unless some kind of offline fix is found (but it is not clear whether only the IDs or the full data gets swapped).

the other two are inconspicuous in data taking, albeit with increased and less stable AVDD currents.

this renders this beam incident the worst since Dec 1st, 2003, judging from damage of the silicon.

cheers,
rainer

Reference: Store 3401 was lost on April 15, 2004 due to an abort kicker prefire. Silicon integrated dose was 180 rads and instantaneous dose maxed out the meters.

Silicon Status, April 28, 2004

From: Rainer Wallny (April 28, 2004)

hi,

an unfortunate update, more silicon ladder body bags in the wake of April 15th kicker prefire. the formerly pristine ladder which reacted but then came back is now a full blown AVDD2 after yesterday's ill fated store - losing 6/10 chips. not clear whether beam conditions exacerbated the already weakened ladder, or whether it would have gone anyway, but if it did, fellas, it was because of high lostp and lostpb with spikes ...
in addition, an ISL half ladder lost bias continuity - 8/16 chips.

I apologize this trickles in like this, but the death of e553 was delayed and spotting the bias condition is a matter of luck and how good the monitoring guy really is (due to the bias scheme we can still draw current but not fully deplete ...)

in 03/30/02, the biggest beam incident to date, we lost 31 chips in AVDD2 style failures (including the downstream chips) on 6 ladders and 6 chips due to bias failure on one ladder. in the April 15th incident, we lost 14 chips due to AVDD2 on 2 ladders, 8 chips due to bias on one ladder and possibly another 14 due to the new failure mode if interchanged chip IDs one one ladder, making this the one of the worst incidents recently

best,
rainer